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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,864	03/23/2005	Iuliu-Ioan Blaga	PB0251	1514
22840 7590 04/01/2009 GE HEALTHCARE BIO-SCIENCES CORP. PATENT DEPARTMENT 800 CENTENNIAL AVENUE PISCATAWAY, NJ 08855				
EXAMINER				
BALL, JOHN C				
ART UNIT		PAPER NUMBER		
1795				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,864

Applicant(s)

BLAGA ET AL.

Examiner

J. CHRISTOPHER BALL

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-13 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10, 12, 13, 15 and 22 is/are allowed.
- 6) ☒ Claim(s) 11 and 16-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06/23/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Summary

1. This is the initial Office Action based on the BLAGA et al. application filed under the Patent Cooperation Treaty on September 25, 2003, and received as a National Stage Application ("371") with the Office on June 23, 2005.
2. Claims 1, 3-13, and 15-22 are currently pending and have been fully considered.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "26" in Figure 1B; "124a", "125", "127", "137", "140", "142", "144", and "146" in Figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because the low contrast of Figure 6 does not allow any discernable detail to be visualized. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 11 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over KENNEDY (US 6,086,740).

Regarding claims 11, 16, and 18-21, KENNEDY discloses a multiplexed microfluidic device, wherein a microfluidic electrophoretic array is taught, comprising:

an array of parallel microfabricated separation channels formed on a first microfabricated substrate (plurality of elements 222, Figure 3) and a corresponding surface of a second substrate bonded to the surface of the first

substrate (202, Figure 3), each channel spans the full length of the substrate and has a first and second end (224, Figure 3);

an array of sample ports on a first surface of the capillary array electrophoresis substrate in the form of the end of an external capillary element (236, Figure 3) for sample introduction (Col. 8, lines 59-64);

an array of sample passageways connecting the array of sample ports and array of separation channels, wherein each of the sample passageways is perpendicular to the first surface of the array substrate, in the form of the length of the external capillary elements (236, Figure 3) used to introduce sample into the separation channels (Col. 8, lines 59-64);

wherein each separation channel (224, Figure 3) is in fluid communication with at least one dedicated sample port (end of an external capillary element (236, Figure 3) for sample introduction (Col. 8, lines 59-64)) through one of the array of sample passageways (the length of the external capillary elements (236, Figure 3) used to introduce sample into the separation channels (Col. 8, lines 59-64)).

KENNEDY does not explicitly teach a cathode and anode mount where both mounts have an electrode within them.

However, KENNEDY teaches a common electrical control element (Col. 9, lines 30-39), wherein it is taught in the prior art how to interface such common electrical elements with each part of an array (Col. 9, lines 39-43). KENNEDY also teaches that electrical connection of arrays with an electrical controller is

typically accomplished by providing electrodes (Col. 11, lines 9-16). Therefore, at the time of the present invention, it would have been obvious to one of ordinary skill in the art given the teaching regarding the common electrical control of KENNEDY to provide the device with both a cathode and anode mount at opposite ends of the separation channel and to include an electrode in each mount to achieve electrokinetic transport within the disclosed device (Col. 8, lines 11-23).

KENNEDY does not explicitly teach the loading of metal pens with sample solution.

However, KENNEDY does not recite a composition of the external capillary element. The only requirement is that it has capillary-type dimensions. Therefore, it would be a choice for the user as to what material to fabricate the external capillary elements, and fabrication from metal would be an obvious alternative among others.

Regarding claim 17, KENNEDY teaches the distance from each cathode port (e.g., 334a-f, Figure 4) to a point where a sample port of the array of sample ports (external capillary elements at bottom of Figure 4) is connected to the channel is approximately equal for each separation channel, as the individual body structures are matching in dimension (Figures 2-5).

Allowable Subject Matter

8. Claims 1, 3-10, 12, 13, 15, and 22 are allowed.
9. The following is a statement of reasons for the indication of allowable subject matter: Each of the independent claims deemed allowable include the limitation of an array of waste ports and an array of waste passageways, wherein the waste passageways are perpendicular to the second surface of the capillary array electrophoresis plate. This limitation is not anticipated, nor made obvious, in a search of the relevant prior art.

The closest relevant prior art is KENNEDY (US 6,086,740). KENNEDY teaches the limitations that are shared by the allowable independent claims and the rejected claims above. However, KENNEDY does not teach, nor does another prior art reference make it obvious to one of skill in the art, to include the limitation of an array of waste ports and an array of waste passageways, wherein the waste passageways are perpendicular to the second surface of the capillary array electrophoresis plate.

Consideration of Prior Art References from ISR of PCT/US03/30362

10. The following references were listed as "X" and/or "Y" reference on the International Search Report for application PCT/US03/30362:

GOMBOCZ et al., US 5,104,512

TAYLOR et al., US 6,375,817

SIMPSON et al., US 6,143,152

SIMPSON et al., US 6,485,625

MATHIES et al., US 6,623,613

BJORNSEN et al., US 6,103,199

KENNEDY, US 6,488,895

LIN, US 6,533,914

None of the above cited references taught or fairly suggested the limitation of an array of waste ports and an array of waste passageways, wherein the waste passageways are perpendicular to the second surface of the capillary array electrophoresis plate. Therefore, these references do not apply to the claims above deemed allowable, as each of the independent claims of this group recited the above mentioned claim limitation.

The above references did not explicitly teach an array of sample passageways connecting the array of sample ports and array of separation channels, wherein each of the sample passageways is perpendicular to the first surface of the array substrate, with the exception of US 6,488,895. The parent of this particular patent, KENNEDY, has been applied as a prior art in rejecting the claims above under 35 USC 103(a).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. CHRISTOPHER BALL whose telephone number is (571)270-5119. The examiner can normally be reached on Monday through Thursday, 8:00 am to 5:00 pm (EDT).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCB
AU 1795
03/23/2009

/Alex Noguerola/
Primary Examiner, Art Unit 1795
March 27, 2009